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PSEUDO-POLYPI OF THE COLON; AN ANOMALOUS RESULT OF FOLLICULAR ULCERATION.

BY

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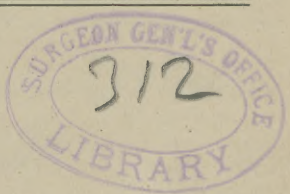

COMPLIMENTARY.

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PSEUDO-POLYPI OF THE COLON; AN ANOMALOUS RESULT OF FOLLICULAR ULCERATION.

By Surgeon J. J. WOODWARD,
BREVET LIEUT.-COLONEL U. S. ARMY, ETC. ETC.

Among the specimens received at the Army Medical Museum after the account of follicular ulceration of the colon in the "Medical History of the War of the Rebellion" had been stereotyped, there are two pieces of colon exhibiting an unusual result of this process of such interest, that, as the case was not reported in the Medical History,[1] the present publication appears desirable.

In the colon from which these pieces were taken the follicular ulcers had enlarged, and adjacent ones had coalesced, until, for more than nine inches, the infiltrated submucosa was laid bare as a raw granulating surface, on which numerous islets of the thickened mucous membrane remained. Subsequently cicatricial contractions commenced in the infiltrated submucosa constricting the margins of the islets of mucous membrane, which were further transformed by hyperplastic inflammatory processes until ultimately they acquired the form of pedunculated excrescences, and projected into the lumen of the intestine like so many little polypi. This lesion must be quite rare, for I find among the records of the post-mortem examinations made during the civil war no description that can be supposed to refer to it, and no like specimen has been received at the Museum; yet the occasional occurrence of similar conditions has not escaped the notice of the pathological anatomists.

Johann Wagner,[2] in a notable article on dysenteric ulceration, published

[1] Nevertheless the process, of which the specimen about to be described is an illustration, was briefly described by me in the Medical History—*The Medical and Surgical History of the War of the Rebellion, Part II., Vol. I., Medical History, being the second Medical Volume*, Washington, 1879, p. 506—on the authority of Rokitansky; see next note but one.

[2] Johann Wagner: *Einige Formen von Darmgeschwüren, iii. Die dysenterische Darmverschwärung*, Med. Jahrb. des k. k. öst. Staates, Bd. xi., 1832, S. 274: "An den Rändern, so wie an den glatten Flecken der Basis jener Vernarbungen erhaben sich hirse-und nadelkopfgrosse, an der Insertion später stielähnlich eingezogne, wie polypöse Wärzchen, welche gleich den gereinigten Flecken, von der den Schleimhaut-

in 1832, described the formation during the healing process of pedunculated polypoid, little warts on the margins of the ulcers and on certain smooth patches on their surface. According to his account both the smooth patches and the warts are coated over with the shining membrane characteristic of cicatrices on mucous surfaces, so that he evidently did not suspect the warts to be really folds of the diseased mucous membrane itself. In size he compared them to pins' heads or millet-seed; they were evidently therefore much smaller than the polypoid excrescences of the Museum specimen.

Carl Rokitansky,[1] in his original paper on the dysenteric process, published in 1839, also described the formation of polypoid excrescences in connection with the cicatrices of dysenteric ulcers, and expressed the opinion that the conditions he observed were identical with those discussed by Wagner; he did not, however, limit the size of the excrescences, as Wagner had done, and he correctly recognized the mode in which they are formed from isolated remnants of the diseased mucous membrane.

narben zukommenden glänzenden Membran überkleidet werden, und der Darmoberfläche daselbst ein fein gefranztes Ansehn mittheilen. Sehr lehrreich weiset diese Veränderungen ein Präparat unsers Museums an mindestens zwanzig linsen-bis thalergrossen Narben im Grimmdarme einer alten Frau nach, welche ein Jahr vorher eine bedeutende Dysenterie glücklich überstand."

[1] Carl Rokitansky: *Der dysenterische Prozess auf dem Dickdarme und der ihm gleiche am Uterus, vom anatomischen Gesichtspuncte beteuchtet*, same journ., Bd. xxix., 1839, S. 88—describes two methods in which dysenteric ulcers may heal: the first being the usual one, the second that which occurs when the loss of substance is considerable. In the latter case he says stricture of the colon results, a conclusion which, as I have elsewhere shown—see the passage in the Medical History cited in the first note to this paper—the great pathologist also drew probably from his study of a single case. The first or usual method is described in the following words: "Tritt Heilung ein, so hat man zunächst, nachdem die Schleimhaut an den, im niederen Grade erkrankten Stellen auf die unter erwähnte Weise zur Norm zurückgekehrt ist, kleinere Flecken, oder ausgebreitete, buchtig umrandete Strecken vor sich, an denen sie fehlt, an denen somit der submucöse, mattweissliche, infiltrirte Zellstoff bloss zu Tage liegt. Nicht selten bleiben auf diesen Stellen vereinzelte Schleimhautreste wie Inseln zurück. Die blossgelegte submucöse Zellschichte wird nun allmählich—wie Leichenöffnungen aus den verschiedensten Zeiträumen nach abgelaufener Dysenterie lehren—zu einem serösen Gewebe umgewandelt; die Schleimhautbuchten am Rande werden gleich den inselförmigen Schleimhautresten, während sich das neue Gewebe zu einem sero-fibrösen verdichtet, zu warzenähnlichen gestielten (polypösen) Verlängerungen zusammen- und hervorgedrängt, wodurch die Ränder ein gefranztes, rundlich gezähntes Ansehen bekommen. Hat sich endlich in Fällen geringeren Substanzverlustes das neue Gewebe so verdichtet, dass es die Schleimhauträuder an einander, und an die polypösen Schleimhautreste herangezogen, so findet man als Narbe eine ihrem Umfange nach der Grösse des Statt gehabten Substanzverlustes und der Grösse und Anzahl der inmitten desselben zurückgebliebenen Schleimhautinseln entsprechende Stelle, von der sich eine Menge dicht beysammen stehender warziger Schleimhaut-Excrescenzen erhebt, zwischen denen man auf die serös-fibröse Basis, von der sie sich erheben, hineinsieht. Diess sind die Narben, von denen Wagner in seiner Charakteristik der dysenterischen Darmverschwärung in diesen Jahrbüchern, 11 Bd. 2, St. p. 274 spricht."

Both in the paper just cited and in the first edition of his Handbuch,[1] Rokitansky represented the rare condition under consideration as a frequent accompaniment of the healing of dysenteric ulcers, but in the last revised edition of his classical work,[2] his elaborate description of this anomaly is omitted from the discussion of dysentery, and transferred to his account of the cicatrization of follicular and other ulcers due to chronic catarrhal inflammation of the colon. It seems probable, therefore, notwithstanding the loose language of his earlier publications, that this condition was actually rare even in the experience of Rokitansky. Indeed, for several reasons, I am strongly inclined to doubt whether either he or Wagner ever encountered more than a single case each. In Wagner's case the cicatrices, about twenty in number, were of moderate dimensions, the largest being of the size of a thaler, and, as Rokitansky affirmed those seen by him to be similar, it is probable that they also were less extensive than the ulcerated surface in the Museum specimen.

Several other systematic writers on pathological anatomy have repeated, in more or less abbreviated form, the original description of Rokitansky, but without indicating that they themselves had ever encountered examples of the lesion.[3] Merely because it is so rare, therefore, consider-

[1] The Library of the Surgeon General's Office does not yet possess a copy of the original, but I quote from the translation of the Sydenham Society, CARL ROKITANSKY —*A Manual of Pathological Anatomy*, vol. ii., London, 1849, p. 86: "If a cure ensues, the portions of mucous membrane which were affected in a lower degree are first restored to their normal condition; between them are small patches or more extensive spaces, with a sinuous circumference, at which the mucous membrane is deficient, and the submucous, pale, infiltrated cellular tissue is exposed. Not unfrequently we perceive detached remnants of mucous membrane adhering to these parts. The exposed submucous cellular tissue is gradually converted, as proved by cadaveric examinations at the most various periods after the cessation of dysentery, into serous tissue; this is further condensed into sero-fibrous tissue, and by it the sinuous portions of mucous membrane, at the edge of the impaired surface, are, like the isolated remnants of mucous membrane, compressed into warty, pediculated (polypous) prolongations, and thus the originally sinuous circumference obtains a fringed, dentated appearance. In cases in which the loss of substance is inconsiderable, the new tissue may contract so as to bring the edges of the mucous membrane into apposition with one another and with the polypous remnants of mucous membrane, and the cicatrix is then represented by a large number of agminated warty excrescences of the mucous membrane, between which the sero-fibrous basis from which they proceed, may be detected."

[2] CARL ROKITANSKY: *Lehrbuch der Pathologischen Anatomie*, 3te umgearbeite Auflage, Bd. III. Wien, 1861. For his description of the cicatrization of the dysenteric ulcer, see S. 209. The old account cited in previous notes is divided between the article on *Catarrhalisch Entzündung*, S. 202–3 and that on *Entzündung und Vereiterung der Drüsen der Dickdarmschleimhaut*, S. 225.

[3] Thus for example C. E. BOCK—*Lehrbuch der Path. Anatomie*, 4te Auflage, Leipzig, 1864, S. 420—writes of catarrhal intestinal ulcers. "Die Vernarbung dieser Geschwüre geschieht durch dichtes, meist schwarz pigmentirtes, schrumpfendes Bindegewebe, auf welchem sich die Schleimhautreste in vorspringenden polypenartigen Wülsten und Franzen erheben. Mit dieser Vernarbung ist stets eine Verengerung des Darm-

able interest attaches to the Museum specimen, but, as will be seen further on, certain structural details, observed in the study of the histology of the folds of diseased mucous membrane constituting the pseudo-polypi, give it far greater value than the mere fact of its rarity would confer.

The specimen was presented to the Museum by Professor John T. Hodgen of St. Louis, Missouri, who has furnished the following history of the case from which it was taken:—

"The patient was a married woman, forty-four years of age, who had enjoyed very good health, with the exception of an attack of malarial fever, which lasted nearly two years in 1849 and 1850, up to the year 1866, when after an abortion, she was attacked with pelvic cellulitis, and a large quantity of pus formed within the pelvic cavity, which eventually found exit through the rectum. During this sickness, which lasted about three months, she was often so reduced as to render recovery extremely doubtful. I will not go into detail as to treatment, but will say, as soon as her strength would permit, she was sent to the sea-beach, where she remained nearly three months, chiefly at Coney Island. Her recovery with change of climate was rapid and effectual.

"From this on, her health was very good up to April, 1876, when she complained of being troubled with 'inward piles,' and had some hemorrhage from the bowels. There was nothing in her condition, however, to excite alarm or even the suspicion of more grave disorder, as some slight medication gave relief. About this time she went to Montgomery Co., Missouri, where some two or three weeks were passed at a sister's. After her return from the country, about the 31st of May, she and her husband went North and East, visiting several places in the States, on the great lakes and in the British Possessions, spending a week or two in New York and Philadelphia, returning again to St. Louis on the 1st of July, 1876. She had enjoyed herself well, and suffered little from fatigue on the trip. Her physical condition was excellent; she had gained more than twelve pounds, and was looking remarkably well. From July 1st to September the time was passed partly in the city and partly in Montgomery County.

"About the middle of September, she again went East, this time directly

rohrs verbunden, die um so stärker und mit scirrhöser zu verwechseln ist, je mehr die Muscularis und das submucöse Bindegewebe dabei verdicht sind."

S. O. Habershon—*Diseases of the Abdomen*, 2d ed., London, 1862, p. 384—in his chapter on colitis and dysentery, remarks: "In the third stage we find ulceration, sometimes merely as minute circular ulcers, but generally of a more extensive character; the ulcers are often oval in form, and placed in the transverse axis of the intestine, and their edges are raised and injected, irregular and undermined; and their base is formed by the cellular or muscular coats. These ulcerations gradually extend so as to coalesce, till at last nearly the whole of the mucous surface is destroyed, except here and there prominent isolated portions, which become intensely congested, and resemble polypoid growths."

S. Wilks and W. Moxon—*Lectures on Pathological Antomy*, 2d ed., London, 1875, p. 416—have confounded this lesion with colitis polyposa—*vide infra*—in a manner which makes it doubtful whether they could be personally acquainted with either condition: "Between the ulcers, the mucous membrane is raised, red, and soft, in the form of so many islands. These may become wonderfully swollen and thickened, while they are still covered with the follicular mucous layer at their summits; they then look like crowds of polypi, and the condition is called *colitis polyposa*."

to Boston, for the purpose of leaving a son at school, and to accompany a friend in delicate health. She remained about a week or ten days in Boston, and during her sojourn was stricken with a very severe dysentery which was checked by 'Velpeau's diarrhœa mixture,' which had been recommended to her by a cousin. She attributed this dysentery to a 'cold' from having removed her underclothes one warm morning before going out sight-seeing, the wind having changed to the East and the temperature having fallen considerably during the day. After reaching her lodging at night she felt chilly and badly. The dysentery immediately followed, and from this time forward, she never fully regained her health. She afterwards spent some time in New York, a couple of weeks, and about three weeks in Philadelphia, feeling badly, bowels irregular with occasional bloody stools, headache, and colicky pains in bowels, although she did not complain much, and I attributed her haggard and depressed look to excessive exertion and fatigue in her efforts to see the Exhibition. (I was not aware until months afterwards that she had anything like dysenteric discharges while in the Quaker City.) She thought that her sickness in Philadelphia was produced by the dry heat of a Baltimore furnace in the house in which she lodged. Besides headache she complained of frequent griping in the lower part of her abdomen. On the 1st of November she was again in St. Louis. The first weeks were marked by positive improvement in her condition. She was in the habit of spending much time out of doors through the day, but her evenings were generally passed at home in quiet reading.

"About the 15th of December she again commenced complaining; the bloody discharges became more frequent and copious, and continued thus until about four weeks before her demise. Her symptoms did not excite alarm until the 18th of December, when, for the first time, her husband saw the bloody discharges. During her prolonged illness the most remarkable features were the constant bloody discharges, sometimes ten or fifteen, and often very many more, during the twenty-four hours; the quantity passed at a single stool being an ounce or two, sometimes nearly pure blood, then again a bloody, serous, or thin fluid resembling oatmeal and water mixed, and having always a peculiar, to me intensely heavy, sickening smell. Sometimes for days there would hardly be a trace of fecal matter, and then again an occasional fecal discharge, almost, if not quite, normal. She suffered at intervals from griping in the lower part of the abdomen; at times, for days together, she would hardly suffer any, and again sometimes she would suffer almost incessantly; her suffering was greatest generally before the fecal discharges. She was generally cheerful, and always hopeful of ultimate recovery. Her pulse seldom got up to one hundred and twenty, and was never under seventy-eight; the average was about ninety-four. The temperature was not taken very regularly, as she had a keen appreciation of its import; the temperature in the axilla was about 100° F.; never did it exceed 102°. Her appetite was poor, and she was annoyed by constant vomiting, seldom keeping nourishment on the stomach any length of time. This proved an obstinate difficulty, one which resisted all the efforts of the physicians to control, and was the cause of very great anxiety in the selection of her food.

"During the last five months of her illness she suffered little from headache, and retained full consciousness up to about six hours previous to death. She died May 8, 1877.

"The treatment was such as the phases of the disease seemed to indicate. I cannot recall to mind the various remedies, nor their effects as observed;

nor would any good be derived from a narration that would otherwise be tedious. I will state, however, that strict diet—light, easily digested, nutritious articles, and the recumbent position, were among the things most insisted upon. Previous to coming under regular treatment she took a mercurial, ten grains of blue mass, followed by a cathartic, in conjunction with a bitter tonic and quinia. The irritability of the stomach having prevented the internal use of the quinia, a concentrated solution was applied to the skin. The use of quinia was persisted in for months, with short intervals, and certainly with no injurious, and I believe really tonic, effects. When mild apperients failed to do anything towards stopping the excessive discharges from the bowels, injections of warm water were used with soothing effect; opiate pills, opiate suppositories, opium, tannin, and other astringents; on one occasion electricity with a decidedly irritating effect; belladonna and its alkaloid, guarana elixir, strychnia, nux vomica, bismuth, bismuth and charcoal, ergot and its preparations, and many other drugs, were fairly tried with, in many instances, apparent good results for a short time, but only for a short time. For a time no medication whatever was employed, but the strictest attention was paid to her diet. The disease seemed to run its course unmodified until death ensued, which, from the symptoms, seemed to result more from inability to assimilate nourishment than from the direct effect of disease, although, after death, the omentum and other parts were found well supplied with fat.

"The body exhibited extreme emaciation. The peritoneum was free from evidences of inflammation, except at the right side of pelvis, where, just at its brim, there were old adhesions, with some recent inflammatory deposit forming adhesions between the right ovary and broad ligament and the head of the colon, where there was a small amount of pus inclosed. The ileum was ulcerated for four inches from the ileo-cæcal valve. The condition of the colon and rectum is illustrated by the specimen."

It appears from the foregoing narrative, that after an acute attack of dysentery, the patient suffered for seven months from a chronic alvine flux, and finally died with the usual symptoms of follicular ulceration of the large intestine.

The specimen, as received at the Museum, consisted of two pieces of colon; one of these, No. 1447, Medical Section, taken from the transverse and descending colon, is eight inches and a half long. The upper two inches of this piece exhibits follicular ulceration, considerable thickening of the mucous membrane and submucous connective tissue, together with transverse contraction and consequent diminution of the calibre of the intestine. These lesions agree in every particular with those described and figured in the Medical History,[1] under the heading *Chronic Inflammation accompanied by Follicular or other Ulcers.* Further down in the same piece, however, the ulcers have become much larger, and adjacent ones have coalesced until, in the lower five inches of the piece, the whole circumference of the gut is occupied with a single huge ulcer, on the base of which there are numerous islets of undestroyed mucous membrane. The mucous membrane, of which these islets consist, is even more thick-

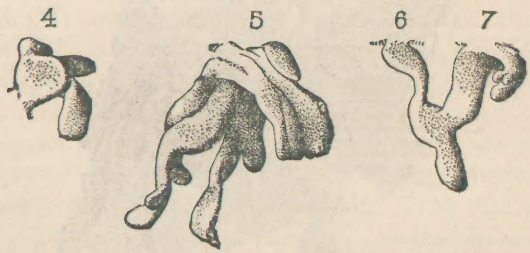
[1] See p. 515 *et seq.*, vol. cited in the first note to this paper.

ened than that in the upper part of the piece, and is variously puckered into fantastic forms. Even on examination with the naked eye merely, there can be no doubt of the real nature of these islets, if the upper as well as the lower part of the specimen is considered, although towards the bottom of the piece there are several that might well be taken for genuine polypi, if they were seen by themselves. The most striking of these are represented in the annexed cut (Fig. 1, Nos. 1, 2, and 3).

Fig. 1.

The second piece, No. 1448, Medical Section, taken from still lower down the colon, is about four inches in length; its whole mucous surface is occupied by a single ulcer, the continuation of that which occupies the greater part of No. 1447. From this surface project thirteen polypoid excrescences; some of them, more or less branched, hang from a single stem like genuine polypi (Fig. 2, Nos. 4 and 5). Others betray that they

Fig. 2.



are actually folds of mucous membrane by the mode in which they hang by two stems (Fig. 2, Nos. 6, 7). The largest one, in the centre of the piece, is an irregularly triangular islet of mucous membrane, about three-quarters of an inch across, the margins of which are puckered into polypoid forms. The whole piece is represented in the annexed cut (Fig. 3). Its appearance is such that on examination with the unaided eye it might readily be supposed that the general surface between the pseudo-polypi consisted of mucous membrane, but the microscope shows that it is really the submucous connective tissue infiltrated with lymphoid elements—converted, in fact, into a contracting granulation tissue—and that the mucous membrane itself is entirely destroyed, except on the surface of the pseudo-polypi.

The microscopical conditions are well illustrated by a series of cuts (Nos. 7993 to 7997, Microscopical Section), made at the Museum by Dr. J. C. McConnell, by whose skilful hands the illustrations of this paper were drawn. For this purpose one of the pseudo-polypi was selected and removed with a fragment (about one centimetre square) of the intestine to which it was attached. After hardening in absolute alcohol a number of

Fig. 3.

Pseudo-polypi of the colon, No. 1448 Medical Section, Army Medical Museum, natural size.

thin sections were made, stained with carmine, and the most successful mounted in Canada balsam. The pseudo-polypus thus treated was fourteen millimetres long, and approximately cylindrical in shape, the part next the constricted stem being, however, considerably swollen. This swollen portion was four millimetres in diameter, the more slender cylindrical portion two millimetres, and the stem a little more than one millimetre.

Microscopical examination of the thin sections showed that the pseudo-

polypus was composed of a central portion of connective tissue (Fig. 4, *a*), and a peripheral portion consisting of diseased mucous membrane. The central connective tissue was continuous with the submucous connective tissue of the intestine, the mucous membrane forming the peripheral portion extended as far as the stem of the pseudo-polypus, but was missing from the surrounding flat surface of the intestine, where the inflamed submucous connective tissue was completely exposed.

The histological conditions observed in the connective tissue forming the central part of the pseudo-polypus resembled what is ordinarily observed in the submucosa of the colon in those chronic inflammations which are accompanied by much thickening of this coat. The endothelial cells (fixed corpuscles) of the connective tissue were much enlarged, and appeared as rounded or oblong, sometimes even spindle-formed, granular, nucleated cells, twelve to twenty-four micro-millimetres in length, with nuclei eight to ten micro-millimetres in long diameter; the lymph spaces contained everywhere great numbers of lymphoid cells (wandering corpuscles), while the fibrillated matrix was scanty or obscured by the number of the cellular elements. The submucous connective tissue covering the flat surface of the intestine exhibited similar conditions, except that towards the exposed surface the lymphoid elements preponderated, constituting a granulation tissue, in which a rich network of large capillary bloodvessels could be recognized, and in which the commencement of cicatrization was manifested by the presence in places of an abundant fibrillated matrix. The connective tissue trabeculæ of the muscular coat of the intestine and the subperitoneal connective tissue were also infiltrated with lymphoid cells, and their endothelial cells were enlarged and granular.

The histological conditions observed in the diseased mucous membrane covering the pseudo-polypus corresponded in many particulars with those that ordinarily occur in chronic inflammations of the mucous membrane of the colon. The columnar epithelium on its surface had entirely disappeared, as is usually the case in specimens of human intestine obtained at autopsies, leaving the surface of the adenoid tissue between the glands of Lieberkühn exposed. By the accumulation of lymphoid elements in this adenoid tissue the glands of Lieberkühn were pushed preternaturally apart, especially at the apex of the pseudo-polypus (Fig. 4, *h*), where the glandular tissue had almost disappeared, and was replaced by a vascular granulation tissue very similar in structure to that which coated the general surface of the intestine.

The glands of Lieberkühn were everywhere greatly elongated (.8 to 1.2 millimetres in length), some of them terminated at their blind extremities in simple clavate pouches, others were bifid, others terminated in four pouches or even more. They had evidently been the seat of an active hyperplastic process which had not merely determined an increase

in length, but caused them to branch dichotomously, precisely as those of them that adjoin the solitary follicles so often do in ordinary subacute and chronic intestinal catarrhs.

In these ordinary catarrhs, as I have shown in the Medical History,[1] the process is limited to the glands adjoining the solitary follicles which are invaded and ultimately replaced by their hyperplastic neighbours; else-

Fig. 4.

Perpendicular cut through a pseudo-polypus of the colon (No. 7997 Microscopical Section; Army Medical Museum). Magnified 10 diameters. *a*. Central connective tissue portion. *b, b*. Submucous connective tissue of the intestine. *c*. Circular muscular coat of the intestine. *d*. Longitudinal muscular coat. *e*. Peritoneum. *f, f*. Two remarkable examples of the ingrowing glands of Lieberkühn; others almost as notable will be observed in other parts of the cut. *g*. One of the pseudo-cystic forms mentioned in the text. *h*. Apex of the pseudo-polypus.

where the overgrowth of the tubular glands is limited by the resistance of the muscle of Brücke, through which in ordinary catarrhs I have never known them to make their way. But under the anomalous conditions that affect the diseased mucous membrane covering our pseudo-polypi, the resistance of the muscle of Brücke appears to have been diminished or overcome, and the ingrowth of the glands of Lieberkühn occurred not

[1] See p. 465 *et seq.*, vol. cited in the first note to this paper.

merely in the vicinity of the closed follicles, but in the intervening parts of the mucous membrane. At frequent intervals glands could be observed that had invaded the submucous connective tissue by their branching terminal pouches, which in extreme cases extended as much as half a millimetre, or even more, beneath the general level of the surrounding cul-de-sacs (Fig. 4, *f*, *f*). In some places the plane of the cut isolated the lateral branches of these penetrating glands, which appeared then as independent multilocular cysts .4 to .6 of a millimetre in diameter, imbedded in the submucosa just beneath the glandular layer (Fig. 4, *g*); but the real nature of such cystic forms was always betrayed by the columnar epithelium with which they were lined, and their similarity to other lateral branches that still remained connected with the parent glands. In other places the plane of the cut was so related to the axis of the penetrating glands that the outline of their ramifications was handsomely displayed. These penetrating glands appear to have found their way into the lymphatic spaces of the submucous connective tissue, and perhaps the circumstance that some of the glands penetrated so far beneath the general level of the others was determined by the original number and position of the larger lymphatic passages through the muscle of Brücke. Be this as it may, the muscle of Brücke had evidently undergone atrophic changes, for it was not only entirely wanting beneath the penetrating glands, but elsewhere could only be occasionally recognized amidst the swarm of lymphoid elements at the base of the glands.

A branching outgrowth of the terminal cul-de-sacs of the affected glands into the adjoining lymphatic passages, combined with an infiltration of the surrounding connective tissue with lymphoid elements, has now for more than ten years been recognized as one of the characteristic histological features of carcinoma,[1] but a consideration of the structural details of our pseudo-polypi shows that this process can no longer be regarded either as a positive diagnostic characteristic of carcinomatous growths, or as a process in any way peculiar to carcinoma. We see in fact in the intestine under consideration merely the results of a prolonged and intense chronic inflammation. It is impossible to apply the term carcinoma to the specimen without first abstracting from that term all its modern limitations, and going back to the ancient way of regarding every obstinate chronic ulceration as cancerous. That among these evident results of mere chronic inflammation we should observe a process which has been regarded as specific and characteristic of cancer, shows only that this mode of regarding the process is premature and contradicted by the actual facts. If indeed there be any specific histological peculiarities by which carcinoma

[1] For an account of the origin of this view with Thiersch (1865), Waldeyer (1867), and Koester (1869), see my lecture *On the structure of cancerous tumours and the mode in which the adjacent parts are invaded.* The Toner Lectures. Lecture I. Smithsonian Miscellaneous Collections, 266. Washington, 1873.

can be distinguished from the results of chronic inflammation, they must evidently be sought in other details than these.

The condition of the colon described in this paper must be carefully discriminated from the still rarer lesions described and figured by Lebert and Luschka, to which Virchow has applied the designation colitis polyposa. In Lebert's case the mucous membrane of the colon was beset with hundreds of little polypi varying in size from that of a lentil to that of a bean, some pedunculated, some sessile. They were composed of a fibroid tissue in which here and there elongated nuclei were imbedded: numerous bloodvessels ramified on their surface, but no glands could be recognized. On the other hand, it is expressly recorded that the glands of the surrounding mucous membrane were normal. The patient was a woman 32 years old, who had suffered for a year from an obstinate diarrhœa.[1] In Luschka's case the polypi are spoken of as existing by thousands from the ileo-cæcal valve to the anus, each square inch having on an average at least twenty-five of them seated upon it. They varied in size from that of a hemp-seed to that of a bean, and the majority of them were distinctly pedunculated, though some of them were sessile. Microscopical examination showed them to consist chiefly of tubular glands resembling the glands of Lieberkühn except that they were longer, and many of them more or less branched. They were held together by a partly fibrillated, partly granular connective tissue, in which naked nuclei as well as nucleated cells were imbedded, and numerous bloodvessels ramified. The mucous membrane of the intestine between the polypi was not visibly altered. The patient was a woman 30 years old, who for years had frequently suffered from bloody diarrhœa.[2]

Whether the case observed by Menzel in 1720, which Virchow has cited as a third example of colitis polyposa, was really of that nature rather than a case of pseudo-polypi similar to those described in this paper, is a

[1] H. Lebert: *Traité d'Anatomie Pathologique*, tome ii., Paris, 1861, p. 316: "CCCLXXII. Polypes multiples sur tout la surface interne du côlon, épaississement de ses tuniques; pneumonie disséquante du lobe moyen droit.—Diarrhée incoercible, pneumonie gangréneuse.—Mort. (Pl. CXXII. fig. 1 et 2.)"

[2] H. Luschka: *Ueber polypöse Vegetationen der gesammten Dickdarmschleimhaut.* (Hierzu Taf. iii.), Virchow's Archiv, Bd. xx., 1861, s. 133. The autopsy in this case must have been made very soon after death, for the polypi are described as presenting a well preserved cylindrical epithelium on their surface: "Ihre Oberfläche an den meisten Stellen ein gut erhaltenes *Cylinderepithelium* zeigte," s. 137. At the close of the article the author quotes the description of polypoid excrescences occurring in connection with the cicatrices of dysentery from the first edition of Rokitansky's Handbuch, see the third note to this paper, and remarks: "In jenem Falle meiner eigenen Beobachtung scheint nur ein geringer Grad der Ruhr gewaltet zu haben, da man nirgends Spuren eines tiefer gedrungenen Substanzverlustes der Mucosa nachzuweisen im Stande gewesen ist. Die Polypen waren auch nicht an narbigen Stellen eingepflanzt, sondern haben sich vereinzelt an Bezirken erhoben, welche keine augenfällige Veränderung des Schleimhautgewebes zeigten." S. 141.

question which the imperfect description and rude etching in the Berlin Acta[1] do not allow me to decide. Nor have I been fortunate enough to

[1] D. Menzel: *De excrescentiis verrucosocristosis copiose in intestinis crassis dysenteriam passi observatis*, Acta Medicorum Berolinensium, vol. ix., 1721, p. 78, also Fig. 4. The patient was a soldier who died of chronic dysentery. The pathological condition of the intestine is briefly described as follows: "Intestina universa erant inflammata eminenter tamen magis crassa, a quibus omentum totum erat divulsum. Intestinum colon et rectum seorsim, raro spectaculo, magna exerescentiarum verrucosocristosarum copia erant ornata, prout adjecta figura monstrat."

The rude etching thus referred to represents a piece of intestine seven inches long, from which fifteen branching polypoid forms project. These are larger than the pseudo-polypi in the Museum specimen: several of them over an inch in length with as many as seven or eight branches. Some of them appear to have two points of origin from the mucous membrane (like the one represented in Fig. 2, Nos. 6–7, *supra*), which certainly resembles our pseudo-polypi rather than genuine polypi. I have thought it worth while to annex a photo-relief *facsimile* of Menzel's etching (Fig. 5), to enable the reader to form his own opinion of the probable nature of the lesion represented.

Fig. 5.

Fig. 5. Fac-simile of the etching illustrating Menzel's paper ("Portio Intestini recti excrescentiarum Verrucosocristosarum plena").

find in literature the details of any other case of genuine colitis polyposa, and as, moreover, I have never seen one myself, I confess to some surprise that Virchow should have applied to it the epithet "common" (gewöhnlichen), even if by that he only intended to indicate that it is more frequent than the condition he has described as colitis cystica polyposa.[1] Certainly I would be well pleased if any of my readers should be able to contribute to the Museum a single specimen illustrative of the lesions described by Lebert and Luschka.

[1] R. Virchow—*Die Krankhaften Geschwülste*, Bd. I., Berlin, 1863, S. 243—after mentioning and giving a figure (Fig. 39) of a preparation of the colon, that exhibits in a striking manner the lesion he describes as colitis cystica polyposa, remarks: "Diese Form ist verschieden von der gewöhnlichen Colitis polyposa, von der Luschka und Lebert Abbildungen geliefert haben, und welche mehr den hyperplastischen Geschwulstformen angehört." On the following page he gives a detailed description of the preparation represented in Fig. 39, from which and the figure, it appears that the lesion illustrated by this remarkable specimen is really the ultimate result of a process, which in a lower degree is common enough in chronic catarrhs of the colon—namely, the invasion of the closed follicles by the adjoining glands of Lieberkühn, the terminal branches of which dilate into cysts. This process I have described in detail in the Medical History (see pp. 328, 465, and 563, vol. cited in the first note to this paper), where I have reported several cases in which the cystic tumours thus formed projected into the lumen of the intestine as little hemispherical tumours one-tenth to one-fourth of an inch in diameter (see p. 512 *et seq.*, *op. cit.*), and pointed out that in a similar case figured by J. Cruveilhier—*Anat. Path. du Corps Humain*, t. ii., Paris, 1835–42, Livraison 34, Planches 2 et 3—many of the cysts were pedunculated, so that the case was intermediate in degree between the most advanced of the cases I reported, and the one reported by Virchow, whose specimen, therefore, is rare only in the degree to which the morbid process had progressed.